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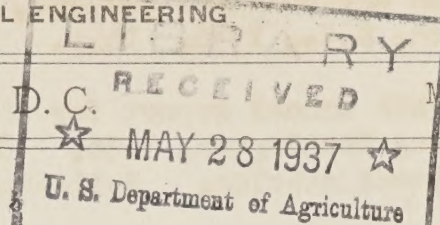
# CURRENT LITERATURE IN AGRICULTURAL ENGINEERING

UNITED STATES DEPARTMENT OF AGRICULTURE  
BUREAU OF AGRICULTURAL ENGINEERING

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## Agricultural Engineering.

Engineering's professional program. By Quincy C. Ayres. Agricultural Engineering. v. 18, no. 4. April, 1937. p.158.

Processing engineering in agriculture. By L.F. Livingston. Agricultural Engineering. v. 18, no. 4. April, 1937. p.155-157. If agriculture is further to grasp opportunity offered by industrial market, every effort must be made to make production cost as low as possible consistent with maintaining reasonable margin of profit for producer. This problem is being solved by new methods, new machines, new storage facilities. Industrialist must not relax his research efforts to find new uses for raw materials which can be supplied yearly with little or no loss to our permanent resource wealth. Successful consummation of this program will require utmost cooperation between all branches of science. Efficient procedure demands definition of industrial needs by industrial scientists, followed by analysis and solution of problems by agricultural and engineering scientists. Factors that are at work creating new relation between agriculture and industry have brought forth, along with new benefits, whole series of new clues to follow that are essentially engineering in character, and which will demand engineered solution.

## Agriculture.

Agricultural conservation. A National farm policy. Washington, D.C., 1936. 8p. U.S. Agricultural adjustment administration. General information series no. 62.

Agricultural experiment station report: Two years ended June 30, 1936. East Lansing, Mich., 1936. 6lp. Agricultural engineering, p.5-6.

Agricultural situation and outlook, 1937. Prepared December 1936. Ottawa, Canada. Department of Agriculture, 1937. 6lp.

Findings in farm science from Wisconsin's proving grounds. Annual report of the director, 1935-36. Madison, Wis., 1937. 168p. Wisconsin. Agricultural experiment station. Bulletin no.438. Farm engineering, p.18-35.

Forty-eighth annual report, fiscal year ending June 30, 1936. Fayetteville, Ark., 1936. 73p. Arkansas. Agricultural experiment station. Bulletin no.337.



Agriculture. (Cont'd)

- Forty-ninth annual report of the South Carolina experiment station of Clemson agricultural college, for the year ended June 30, 1936. Clemson, S.C., 1936. 144p.
- Forty-sixth annual report for the fiscal year ended June 30, 1936. Pullman, Washington, 1936. 84p. Washington. Agricultural experiment station. Bulletin no. 342.
- Graphic presentation of changes in the agriculture of Washington from 1930 to 1935. By Carl P. Heisig. Pullman, Wash., 1936. 47p. Washington. Agricultural experiment station. Bulletin 341.
- Graphic summary of farm taxation. By Donald Jackson. Washington, D.C., 1937. 17p. U.S. Department of agriculture. Miscellaneous publication no. 262.
- How science aids Utah agriculture. Biennial report of the director, 1934-35 and 1935-36. Logan, Utah, 1936. 84p. Utah. Agricultural experiment station. Bulletin no. 276. Irrigation, drainage and groundwater, p. 49-54.
- Imports and exports of agricultural products. Washington, D.C., Chamber of commerce of the United States, 1937. 47p. Joint report of Agricultural department committee and Foreign commerce department committee.
- Improving our rural credit facilities. By W. I. Myers. Washington, D.C., Farm Credit Administration, 1936. 22p. Circular A-10.
- Let's get out of debt. By Albert S. Goss. Washington, D.C., 1936. 18p. Circular A-9.
- On the front lines with agriculture. A report of extension work in agriculture and home economics in 1934. Washington, D.C., U.S. Department of agriculture, Extension service, 1937. 80p.
- Partners in agricultural progress. By C.B. Hutchinson. Report of the Agricultural experiment station, College of agriculture, University of California. July 1, 1934-June 30, 1936. Berkeley, Calif., 1937. 230p.
- Research and educational activities of the station as relating to agricultural trends in New Jersey. By Jacob G. Lipman. New Brunswick, N.J., 1936. 20p. New Jersey. Agricultural experiment station. Bulletin no. 616.
- Science serving agriculture. Report for June 1, 1934 to June 30, 1936. Stillwater, Okla., 1936. 191p. Engineering applied to agriculture, p. 175-176.



Agriculture. (Cont'd)

Service to agriculture. Report of the West Virginia agricultural experiment station for the biennium ending June 30, 1936. Morgantown, W.Va., 1936. 40p. West Virginia. Agricultural experiment station. Bulletin no.278.

Work of the agricultural experiment station. Report of the Director for the year ending June 30, 1935. Columbia, Mo., 1936. 99p. Missouri. Agricultural experiment station. Bulletin no.370. Agricultural engineering, p.27-28.

Air Conditioning.

Condensed list of sources of information on air conditioning. Washington, D.C., Bureau of foreign and domestic commerce, 1937 26p.

Investigation of summer cooling in the warm-air heating research residence. By Alonzo P. Kratz, Maurice K. Fahnestock and Seichi Konzo. Urbana, Ill., 1937. 140p. Illinois. Engineering experiment station. Bulletin no 290. Experiments conducted in cooperation with American society of heating and ventilating engineers, and National warm-air heating and air conditioning association.

University of Illinois installs new experimental conditioning equipment. By William H. Severns and Maurice K. Fahnestock. Heating, piping and air conditioning. v. 9, no. 4. April, 1937. p.227-230. New experimental air conditioning installation recently completed at University of Illinois is available not only for the use of undergraduate and graduate students, but for research work as well. So that all manner of tests and studies may be made, design incorporates great many features not found in ordinary commercial installation. This thorough description of layout will interest all concerned with training and research in air conditioning, and institutions and industrial organizations contemplating similar installations.

Associations.

A.S.A.E. Officers for 1937-38. Agricultural Engineering. v. 18, no.4. April 1937. p.172.

Building Materials.

Mechanical and electrical equipment for buildings. By Charles Merrick Gay and Charles de van Fawcett. New York, John Wiley & sons, inc., 1935. 429p.

Place of steel in farm building construction. By Earl D. Anderson. Agricultural Engineering. v. 18, no. 4. April, 1937. p.164.



### Building Materials. (Cont'd)

Strength, absorption, and resistance to weathering of common and face brick manufactured in Virginia. By John W. Whittomere and Paul S. Dear. Blacksburg, Va., 1936. 32p. Virginia. Engineering experiment station. Bulletin no.26.

### Cisterns.

Cheap cistern construction brings trouble. By I.W. Dickerson. Farmer-Stockman. v. 50, no. 4. February 15, 1937. p. 35. Table gives water capacity of various sizes of cisterns: 100 barrel - 3-foot diameter, 8 feet deep, plus arch; 9-foot diameter, 6 feet deep, plus arch. 150-barrel - 9-foot diameter, 9 feet deep, plus arch; 10-foot diameter, 7 feet deep, plus arch; 200-barrel - 9-foot diameter, 12 feet deep, plus arch; 10-foot diameter, 10 feet deep, plus arch. 250-barrel - 10-foot diameter, 12 feet deep, plus arch; 12-foot diameter, 9 feet deep, plus arch. 300 barrel - 11-foot diameter, 10 feet deep, plus arch; 12-foot diameter, 10 feet deep, plus arch.

### Cotton and Cotton Ginning.

Cotton ginned in Oklahoma. Farmer-Stockman. v. 50, no.4. February 15, 1937. p.15. Preliminary report on cotton ginned prior to January 16, by counties, in Oklahoma for crops of 1936 and 1935, as released by U.S. Department of Commerce through Bureau of the Census is shown. For comparison, tabulation also shows ginnings for 1933, most recent large crop, and for 1926, largest crop on record.

Cotton production and distribution, season of 1935-36. Washington, D.C., 1936. U.S. Bureau of the census. Bulletin no.173.

### Cotton Machinery.

Research from the cotton wagon to the spindles. By L.T. Stone. Cotton and cotton oil press. v. 38, no. 13. March 27, 1937. insert F-H.

Steam heaters for cotton conditioners. By Charles A. Bennett. Cotton ginners' journal. v. 8, no. 7. April 1937. p.9-10, 40.

"Thirty years on cotton pickers" Farm Machinery and Equipment. no.1839. March 15, 1937. p. 7-8, 42. Veteran harvester engineer discusses problems confronting mechanical pickers. No fear of Southern agricultural revolution.

### Dairy Farm Equipment.

Better milk with electricity. By H.S. Bingham. Agricultural Engineering. v. 18, no. 4. April, 1937. p.161-163. One of outstanding advantages of this type of pasteurization is that milk seems to retain all of its natural and original properties. Another



Dairy Farm Equipment. (Cont'd)

important advantage is that it is more easily possible to obtain product which is uniformly low in bacteria count. Convenience, simplicity, and reduced area of cleaning surface would be more than ample compensation for difference in cost of operation.

Cooling for quality. By T.E. Hienton. Electricity on the Farm. v. 10, no. 4. April 1937. p.17-20, 22.

Dams.

Conchas dam and reservoir project. By John R. Noyes. Engineering News Record. v. 118, no.15. April 15, 1937. p.541-545. Work begun on combined flood control and irrigation water storage project on South Canadian river in New Mexico after extensive study of stream flows and of possible dam sites. Dam adapted to peculiar rock condition in river gorge.

Selection of materials for rolled-fill earth dams: Discussion. By R.R. Proctor. American society of civil engineers. Proceedings. v.63, no.4. April 1937. p.722-724.

Diesels.

Diesel engine maintenance. By James G. Thompson. California Cultivator. v. 84, no. 4. February 13, 1937. p. 93, 129.

Drainage.

Drainage and irrigation, soil, economic, and social conditions, Delta area, Utah. Economic conditions. By W. Preston Thomas and George T. Blanch. Logan, Utah, 1936. 49p. Utah. Agricultural experiment station. Bulletin no.273.

Electric Wiring.

Wiring and lighting the farm home. By D.E. Jones and Pauline E. Gordon. Raleigh, N.C., 1937. 23p. North Carolina. College of agriculture and engineering. Extension service. Circular no. 213.

Wiring the farmstead. By John M. Larson. Wisconsin Agriculturist and Farmer. v. 64, no. 5. February 27, 1937. p. 1,5.

Wiring the farmstead. By John M. Larsen. Wisconsin agriculturist and farmer. v. 64, no. 6. March 13, 1937. p.33. Suggestions which give adequate safety: (a) No grounding to any portion of farm water system. (b) All grounds shall be driven rods or pipes not less than 10 feet in length. (c) Driven grounds shall be used at main line switch and at entrance to each building. (d) For milking machines where motor is not insulated from vacuum pump and pipe line, it is suggested that in each case vacuum pump be connected to suction line by means of rubber hose connection.



## Electricity - Distribution

Curb land speculation to make farming safe and electrification possible, says Utility Executive. By William E. Clement. Air Conditioning and Refrigeration News. v. 20, no. 11. March 17, 1937. p. 16, 18.

Electric light and power industry in the United States for the ten year period 1926-1935 and preliminary data for the year 1936. New York, Edison electric institute, 1937. 45p. Statistical bulletin no.4.

## Electricity on the Farm.

Common uses of electricity on average farm. By J. Romness. Wisconsin Agriculturist and Farmer. v. 64, no.6. March 13, 1937. p.17, 19. Table gives power requirements for various farm job.

Drying seed corn with electricity. By F.W. Duffee. Agricultural Engineering. v. 18, no. 4. April, 1937. p.149-151. How the bin dryer works. General specifications of the equipment. Temperature and humidity control equipment. Cost of drying by the bin method.

Elec Swift makes a superb farmhand. By Morris H. Lloyd. Electrical World. v. 107, no. 15. April 10, 1937. p.52-55. Comprehensive two-year test on New York farm shows electricity at a dollar a day equals two able-bodied farmhands.

Electric pig breeders. By J.R. Tavernetti. Pacific Rural Press. v. 133, no.9. February 27, 1937. p.305.

Electric power on the farm: Story of electricity, its usefulness on farms, and the movement to electrify rural America. Washington, D.C., Rural electrification administration, 1936. 170p.

Electrifying our farms. By H.J. Gallagher. Michigan Farmer. v. 187, no. 3. January 30, 1937. p. 10, 13. Noteworthy changes that have taken place during past ten years are: 1. Lowered rates: average cost per kwh on Michigan farms in 1926 was three times as much as in 1936. 2. General elimination of service charges, up to and including 5 kva transformer capacity. 3. More favorable and more uniform farm line construction policies. 4. Use of one meter for light, heat and power instead of three meters. 5. Better understanding between utilities and agriculture, and problems affecting each of the two industries. 6. More adequate farm wiring jobs. 7. Increased uses of electricity for farm power, and above all conversion of farm house into farm home, where conveniences, health and comforts add their quota to life.

Magic that is electricity. By L.L. Rummell. Ohio Farmer. v. 179, no. 1. January 2, 1937. Farm luxury of yesterday is now an every-day convenience.



Electricity on the Farm. (Cont'd)

Saving with electricity. By Frank Mason. Michigan Farmer. v.187, no.5. February 27, 1937. p. 5, 9, 26.

State extension bulletins on rural electrification. By S. P. Lyle. Washington, D.C., 1937. 4p. mimeographed. U.S. Department of agriculture. Extension service. Miscellaneous extension publication no.38.

Using electricity on North Carolina farms. By David S. Weaver. Raleigh, N.C., 1937. 19p. North Carolina. College of agriculture and engineering. Extension Service. Circular no.215.

What agricultural engineers have done for rural electrification. By E.C. Easter. Agricultural Engineering. v. 18, no.4. April 1937. p.152.

Engineering.

Handbook of engineering fundamentals. By Ovid W. Eshbach. New York. John Wiley & sons, inc., 1936. 1082p.

Engines.

Cavalcade of the iron horsemen. By F. Hal Higgins. Pacific rural press. v. 133, no. 8. February 20, 1937. p.234, 278.

Erosion Control.

"Brushing out" the banks of streams. By C.F. Stewart Sharpe. Soil Conservation. v. 2, no. 10. April 1937. p. 221-224.

Contour furrowing on pasture and range lands. Washington, D.C., U.S. Soil conservation service, 1937. 133-145p. Reprint from Soil conservation, v.2, no. 7. January, 1937.

Erosion can be reduced. By Elmer J. Johnson. Western Farm Life. v. 39, no. 6. March 15, 1937. p. 8, 26. Growers in north-eastern Colorado tell how they check wind and water damage.

Erosion control along highways. By Arnold Davis. Agricultural Engineering. v. 18, no. 4. April, 1937. p. 169-170.

Erosion depletes our best land. By R.L. Cook. Michigan Farmer. v. 187, no. 4. February 13, 1937. p. 5, 28.

Improvement of farm ponds and watersheds for erosion control and wildlife production. By Werner O. Nagel and Marion W. Clark. Columbia, Mo., 1937. 11p. Missouri. College of agriculture. Agricultural extension service. Circular no.361.

Erosion Control. (Cont'd)

Rotation of gully heads. By H.A. Ireland. Soil Conservation.  
v. 2, no. 10. April 1937. p.228-229, 244. New conservation  
practice for gully control.

Topsoil, its preservation. Washington, D.C., 1937. 22p. U.S.  
Soil conservation service.

When is a gully stable. By D. Hoyo Eargle. Soil Conservation.  
v. 2, no. 10. April 1937. p. 225-227.

Farm Buildings and Equipment.

Dipping bath for horses. Journal of the Department of Agriculture  
of South Australia. v. 40, no. 5. December, 1936. p. 434-  
435. Gives plan.

Dust fungicide feeders for use with seed-treating equipment. Washington,  
D.C., 1936. 3p. mimeographed. U.S. Department of agriculture.  
Bureau of agricultural engineering.

Good type of cornerib and granary. By Wm. McArthur. Farmer.  
v.55, no. 6. March 13, 1937. p. 20.

Gravity seed treater. Western Farm Life. v. 39, no. 6. March 1,  
1937. p. 8. Can be made on farm.

Home cider press. By F.E. Atkinson. Ottawa, Canada. 1936. 8p.  
Canada. Department of agriculture. Publication no.530.

Small reinforced concrete tanks. By J.E. Kirkham. Stillwater,  
Okla., 1937. 21p. Oklahoma. Engineering experiment station.  
Publication no. 32.

Farm Machinery and Equipment.

Combine smaller in size and price. Pacific rural press. v. 133,  
no. 8. February 20, 1937. p.236. Many crops - vetches,  
clovers, gyp corns, beans, sunflowers, beet, carrot, onion seeds  
now successfully handled for first time.

Cradle of the combine. By F. Hal Higgins. Pacific rural press.  
v. 133, no. 8. February 20, 1937. p.284. Historic pedigree  
of machines built and actually operated on Pacific coast.

Developments in seed bean threshing. By Roy Bainer. Pacific  
rural press. v. 133, no. 8. February 20, 1937. p. 242-243.  
Machine that is reported on in this article is still in experi-  
mental stage. Further field trians will be conducted next harvest  
season.



Farm Machinery and Equipment. (Cont'd)

83 years of equipping California farms. By F. Hal Higgins. Pacific rural press. v. 133, no. 8. February 20, 1937. p. 231, 248-249, 252-253, 260-261, 264-265, 276-277.

Farm power contractor. Pennsylvania Farmer. v. 116, no. 1. January 2, 1937. p. 5, 17.

An ingenious Ladino seed harvester. Pacific Rural Press. v. 133, no. 9. February 27, 1937. p. 310. Harvester is built around old tractor, with tractor motor furnishing all power needed.

Mechanical power for small farms. California Cultivator. v. 84, no. 7. March 27, 1937. p. 242.

Mechanization reduces labor in growing wheat. By Martin R. Cooper. Agricultural Situation. v. 21, no. 4. April 1, 1937. p. 12-14. Actual figures according to surveys made by Bureau of Agricultural Economics in 1919 and again in 1933 were about 9 hours per acre in first year and 2.3 in latter year. This tremendous reduction has come about as result of mechanization in which combination harvester-thresher tractor, motortruck, and larger units of tillage equipment have almost completely displaced use of horses and smaller sizes of farm equipment.

Power farming. By Harry G. Davis. Implement Record. v. 34, no. 4. April 1937. p. 17-18. In 1820, 83 per cent of available workers operated our farms by hand labor; today, 21.5 per cent accomplish more with less effort through mechanized methods. Article portrays graphically tremendous progress made since introduction of mechanized farming and advantageous effects which this comparatively new way of farming has had upon nation as whole.

Progress and trends in machinery and power. By H.B. Walker. Pacific Rural Press. v. 133, no. 8. February 20, 1937. p. 230, 235.

Reapers; yesterday and today. By F. Hal Higgins. Pacific Rural Press. v. 133, no. 8. February 20, 1937. p. 233, 277.

Reconditioning used implements. By L. W. Hurlbut. Implement & Tractor. v. 52, no. 7. April 3, 1937. p. 21, 24.

Repair in time saves. Hoard's Dairyman. v. 82, no. 5. March 10, 1937. p. 139. With few exceptions, life of farm machines is not directly influenced number of days used per year. (Machines wear out more from abuse than use.) Systematic repairing has more influence on life of farm machines than housing of them. Well equipped farm shop is definite aid to systematic repair of farm machines.

Second conference on mechanized farming. Journal of the Ministry of agriculture. v. 43, no. 11. February 1937. p. 1033-1039. Tractor performance and cultivation; maintenance of fertility; grass drying; combine harvesters.

Farm Machinery and Equipment. (Cont'd)

See that the machines are ready. - Dakota Farmer. v. 57, no. 6.  
March 13, 1937. p. 142.

To make wagons behave. By James Notley. Country Home Magazine.  
v. 61, no. 3. March, 1937. p. 68. Discussion of telescope  
wagon tongue.

Tractor-combine-thresher sales compared. Farm Implement News. v. 58,  
no. 8. April 22, 1937. Table of unit sales of tractors, combines  
and threshers in United States in 1936 are compared with those of  
1929 and 1920.

What types of combines for '37? Implement & Tractor. v. 52, no. 7.  
April 3, 1937. p. 17, 44. Brighter wheat outlook assures best  
harvesting machine demand since 1930, and heightens interest in  
farmers' reactions to changes in sizes and speeds.

Feed Grinders and Grinding.

Processing feeds on Nebraska farms. By E.E. Brackett and E.B. Lewis.  
Lincoln, Neb., 1936. 24p. Nebraska. Agricultural experiment  
station. Bulletin no. 302.

Fertilizer Placement.

Survey of fertilizer application practices in connection with field  
crops. Conducted by the National joint committee on fertilizer  
application through its Subcommittee on machine placement.  
Washington, D.C., National fertilizer association, 1936. 45p.  
mimeographed.

Fertilizer.

Some changes in potato fertilizer use. By B.E. Brown. American  
Potato Journal. v. 13, no. 12. December, 1936. p. 327-339.  
1. Changes in fertilizer materials. 2. Fertilizer composition.  
3. Plant food concentration of potato fertilizers. 4. Acid and  
neutral potato fertilizers. 5. Uncommon plant food deficiencies,  
and 6. Fertilizer placement for potatoes.

Flaxseed.

Production of flaxseed in Canada. By W.G. McGregor. Ottawa.  
Canada, 1936. 11p. Canada. Department of Agriculture.  
Publication no. 545.

Floods and Flood Control.

Flood menace and erosion problem challenge scientists of many fields.  
Washington, D.C., U.S. Soil conservation service, 1936. 8p.  
Information consolidated at noteworthy Upstream engineering conference.  
Reprint from Soil conservation, v.2, no. 5. November 1936.



Floods and Flood Control. (Cont'd)

Floods and wildlife. By Ira N. Gabrielson. Scientific American. February 1937. p.100-102. Reprint.

Florida Ship Canal.

Markham endorses Florida canal. Engineering News Record. v.118, no.15. April 15, 1937. p.568, 572. Gen. Markham testifies before House committee hearings on Florida ship canal explaining his favorable report.

Flow of Water.

Flow characteristics in elbow draft-tubes: Discussion. By F.T. Mavis. American society of civil engineers. Proceedings. v. 63, no. 4. April 1937. p.783-786.

Flow of water in pipes, sewers and channels; over weirs and off catchments. By George Bransby Williams. London, Chapman & Hall limited, 1934. 76p.

Pressure losses for fluid flow in curved pipes. By Garbis H. Keulegan and K. Hilding Beij. Washington, D.C., 1937. 89-114p. U.S. National bureau of standards. Research paper no.965. Reprint from Journal of research, v. 18, January 1937.

Hay Storage.

Comparative efficiencies of hay storing methods. By C.Y. Cannon, E.V. Collins and D.L. Espe. Agricultural Engineering. v. 18, no. 4. April, 1937. p.153-154, 157. Summary: Hay cured in field can be successfully chopped and blown into hay mow by hay chopper. Hay was stored in mow at faster rate with hay chopper than with grapple fork. However, cost per hour of operating hay chopper was greater than cost of additional man and horse labor when hay was stored with grapple fork. Cost per ton of chopping and blowing hay into mow was slightly more than when it was mowed away with grapple fork. Hay with high moisture content was relatively more costly to chop than hay with low moisture content. Chopped hay cured somewhat browner than similar uncut hay. Unless chopped hay is very dry it cannot be expected to cure in mow without browning. Palatability of hay was evidently not injured by chopping process, though blackening of hay, whether chopped or unchopped, did injure its palatability.

Heat Transmission.

Heat transfer in evaporation and condensation. Max Jakob. Urbana, Ill., 1937. 75p. Illinois. Engineering experiment station. Reprint no. 10. Reprinted from Mechanical Engineering, October and November, 1936.

### Heating.

American society of heating and ventilating engineers' guide, 1937  
for heating, ventilating, air conditioning. New York, 1937.  
1156p.

Cooling and heating rates of a room with different types of steam  
radiators and convectors. By A.P. Kratz, M.K. Fahnestock and  
E.L. Broderick. Heating, Piping and Air Conditioning. v. 9,  
no. 4. April 1937. p.251-264. Objects of investigation were:  
(1) to determine influence of different types of direct steam radi-  
ators and convectors on rate of cooling of room under winter service  
conditions after steam supply to heating units was turned off; (2)  
to determine influence of different types of direct steam radiators  
and convectors on rate of heating same room from stated minimum  
temperature after steam supply to heating units was turned on; (3)  
to correlate results with physical characteristics of heating units.

### Hitches.

Hoary rules of plow hitching aren't all true. By A.W. Clyde. Farm  
Implement News. v. 58, no. 8. April 22, 1937. p. 32-33.

### Hotbeds.

Electricity speeds up hotbeds. Washington Farmer. v. 62, no. 6.  
March 18, 1937. p. 12, 15.

The hotbed goes electric, and thereby becomes a still more useful  
garden adjunct. By A.E. Wilkinson. House & Garden. v. 71,  
no. 2. Feb. 1937. Section 1. p. 58, 75-77.

### Houses.

Architects' specification manual for residences. New Orleans, La.,  
Southern pine association, 1936. 24p.

Cost of reinforced concrete house. By C. Paul Ulmer. American  
Builder. v. 59, no. 4. April 1937. p. 108, 112, 116, 120,  
124, 128, 168, 170, 172, 174, 176. Purdue housing research project,  
house number 3.

Homes for workers. Washington, D.C., 1937. 87p. U.S. Federal  
emergency administration of public works. Housing division.  
Bulletin no.3.

### Insulation.

Use of fill insulation in construction of refrigerated rooms. By Willis  
M. Rees. Agricultural Engineering. v. 18, no. 4. April 1937.  
p. 159-160, 163. Type of insulation which is most suitable for



Irrigation.

Almond culture in California. By Milo N. Wood. Berkeley, Calif., 1937. 96p. California. College of agriculture. Agricultural extension service. Circular no. 103. Irrigation, p.48-54.

Seasonal uses of water by potatoes and other farm crops under irrigation. By Leslie Bowen. Lincoln, Neb., 1937. 31-38p. Reprinted from 17th annual report of the Nebraska potato improvement association, March 1936.

Suitability of nitrogenous fertilizers for application in irrigation water. By Willard G. Babcock. California Citrograph. v. 22, no. 2. December 1936. p. 70, 75. Summary: (1) Summer applications in irrigation water, of quickly available nitrogen are highly effective in supplying economical and efficient source of nitrogen at time when most needed by trees. (2) Calcium nitrate, ammonium sulfate and anhydrous ammonia can all be readily delivered into irrigating water at uniform rate in such concentrations as are desirable. (3) Calcium nitrate offers immediately available supply of nitrate nitrogen. Ammonia compounds require time for conversion into nitrate form. (4) Calcium nitrate is subject to uniform distribution throughout root zone of soil. Ammonium sulfate and anhydrous ammonia are not subject to uniform distribution throughout root zone of soil. (5) Calcium nitrate and ammonium sulfate are not subject to losses through evaporation when put into irrigating water. Varying amounts of ammonia are lost into atmosphere through evaporation when anhydrous ammonia is placed in irrigating water.

Use of fill insulation in construction of refrigerated rooms. By Willis M. Rees. Agricultural Engineering. v. 18, no. 4. April 1937. p. 159-160, 163. Type of insulation which is most suitable for these cold storage constructions is one which in itself will not absorb dampness nor retain it, and one which is loose and fluffy, permitting ready passage of vapor through material. It should be material which will remain permanently in place, and is in form which may easily be handled. It should not be attractive to vermin or rodents, and should have great chemical and physical stability. It should also be fireproof materials which is not affected by water or ice. It must not absorb nor give off odors. It is not intention of discussion to indicate that fill types of insulation can be universally substituted for block types of insulation. It is obvious that in construction of milk cooler where cans of milk are placed in cold water that block type of insulation is still probably most suitable type to use. There will obviously be other similar constructions which should use block type rather than fill type. However, usual type of cold room can be constructed with fill insulation, using ventilated construction, for fraction of cost of block type insulation which has been commonly used in past.

### Insulation.

Supplemental irrigation in humid areas. By F.E. Staebner. Agricultural Engineering. v. 18, no. 4. April, 1937. p.165-168, 170. Surface irrigation for simplicity and low investment. Adaptation of practice to meet special conditions. Special equipment aids to application of water.

Water, the key to western progress. By Horace B. Dye. Western Farm Life. v. 39, no. 3. February 1, 1937. p. 3, 8. As we solve irrigation problems, we guide future farm prosperity.

Yields from pump irrigation. By Harry Weakley. Nebraska Farmer. v. 79, no. 8. April 10, 1937. p. 10-11, 20. Corn Sorgo, Potatoes, Alfalfa, Sugar beets.

### Land Clearing.

Forced draft method of stump burning. By R.N. Miller. Pullman, Wash., 1937. 12p. Washington, State College. Extension service. Bulletin no. 229.

### Land Utilization.

Approach to area land use planning (with particular reference to technique and procedure) By M.H. Saunderson and others. Washington, D.C., 1937. 60p. U.S. Resettlement administration. Land use planning publication no. 16.

Management and use of agricultural lands including farm woods and pastures. By H.H. Bennett. Washington, D.C., U.S. Soil Conservation Service, 1936. 39p. mimeographed. Paper presented at Upstream engineering conference, September 22-23, 1936.

Summary of existing rural land use legislation in Minnesota. By Orville C. Peterson and Everett C. Norberg. Washington, D.C., 1937. 108p. mimeographed. U.S. Resettlement administration. Land use planning publication no.13.

### Lubrication.

Effects of service on automobile crankcase oils. By James I. Clower and N.M. Conner. Blacksburg, Va., 1937. 40p. Virginia. Engineering experiment station. Bulletin no.28.

### Miscellaneous.

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## Soils. (Cont'd)

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